

Vermont Forest Health

Insect and Disease Observations— August 2018

Department of Forests, Parks & Recreation
August 2018
vtforest.com

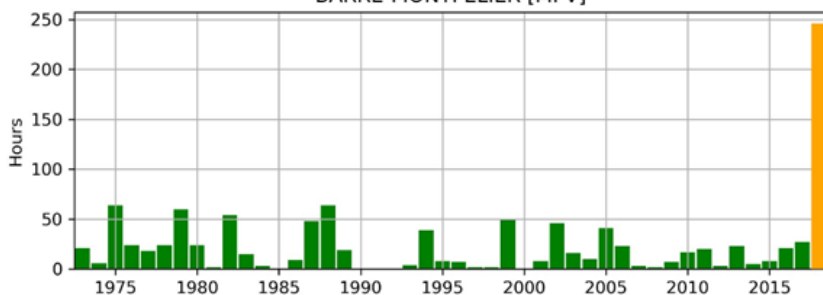
Sweltering Summer Continues

The summer heat continued through August with temperatures for the month 2° to 6° above normal. Highest [maximum and highest minimum temperature records](#) were broken in Vermont and across the Eastern US. August had the warmest mean temperature in Burlington with 74.5° and the second warmest in Montpelier with 68.3°. Meteorological summer (June/July/August) tied the warmest mean temperature in Burlington with 72.2°, previously set in 1949 despite June being below normal.

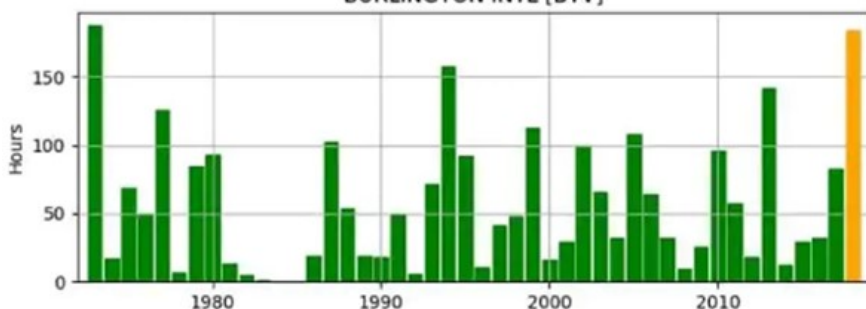
Not only were temperatures hot, [high humidity](#) added to the discomfort. Heat advisories for the Champlain and central/southern Connecticut River Valleys were issued early in the month (August 5-7) and again late in the month (August 27). [Heat indexes](#) in the warning areas were observed in the 90's to 100°, elsewhere in the upper 80's and low 90's.

The oppressive dewpoint temperatures in the 60° to 70° range kept the air muggy for much of the month. The [Iowa Environmental Mesonet](#) graphed hours with dewpoint temperatures at or above 70° for many locations across the Eastern U.S. including Burlington and Montpelier. Note in the graphs below that 2018 (in yellow) is higher than normal.

(No Month/Time Limit) Dew Point Temp (F) Hours At or Above 70
BARRE-MONTPELIER [MPV]



(No Month/Time Limit) Dew Point Temp (F) Hours At or Above 70
BURLINGTON INTL [BTV]



Unrelenting periods of [high humidity](#) this summer have affected many areas of the Northeast. Since high moisture content in the air keeps temperatures from falling as far as they otherwise would at night, some areas have experienced unusually high nighttime temperatures.

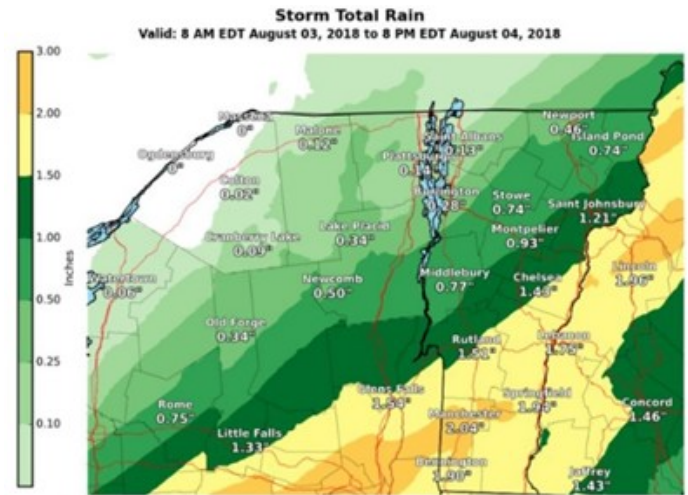
Graph Source: [Iowa Environmental Mesonet](#)

The Northeast Regional Climate Center website has a link to a [database](#) that finds the best match to weather happening at a particular place and the part of the country where such conditions are normally most common. For the month of August, Burlington felt more like Baltimore.

Typically, hot and humid weather generates severe storms. Despite the relentless humidity this summer, severe weather was hit or miss. On August 3-4, thunderstorms brought 0.13" of rain to St. Albans and 2.04" in Manchester where a flash flood watch was issued. Elsewhere, rainfall amounts varied from 0.5 to more than 1.5".

Rain totals from thunderstorms on August 3-4 generally ranged from 0.5 to 1.5 inches. The haphazard nature of precipitation is reflected in this map. St. Albans received 0.13 inches on that occasion, while 2.04 inches fell in Manchester, prompting a flash flood watch.

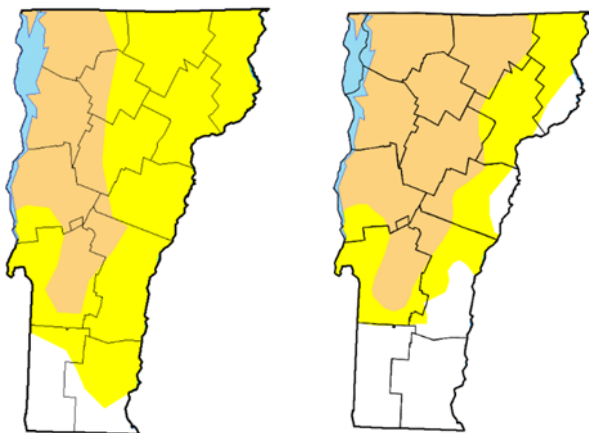
Map source: [National Weather Service, Burlington, Vermont.](#)



Strong storms with heavy downpours left over an inch of rain in northwestern Vermont (1.2" in Swanton and 1.28" in Alburgh) on August 8. That would be the last significant rainfall there all month. Swanton's month-to-date total was 1.71" and Alburgh's, 1.51" (For other station report summaries, visit this [link](#).)

On August 17, there was heavy thunderstorm activity in southeastern Vermont, and widespread beneficial rain was recorded on August 18. Fast moving storms on August 29 brought a quick shot of torrential rain up to 0.5" total and strong winds that downed trees in a path from Newport to Canaan.

The hit or miss nature of rain events has left several areas of the state drier than others. Overall, August was drier than normal for northern Vermont with the southern counties wetter. Moderate drought expanded from the end of July to include all northwestern and north central Vermont. Effects of drought are showing up in the landscape. Aerial surveys flown in July mapped about 2,100 acres. If surveys were made now, we expect that that acreage would increase.



Vermont drought monitor maps from July 31, 2018 and August 28, 2018.

Source: [U.S. Drought Monitor](#)

Some maples, both red and sugar, are already showing fall color. During a visit to our Underhill phenology site on August 28, a few birches (at 2600') had started changing color and even dropping leaves. (Two crowns had dropped 15% of leaves already!)

Intensity D0 Abnormally Dry D1 Moderate Drought

EAB: Purple Traps, Quarantines and Public Information Meeting

Purple traps are coming down for the year, and are being inspected for Emerald Ash Borer adults. So far, in addition to the new Bennington County detection in Vermont reported last month, traps have also caught EAB in two new counties in New Hampshire: Carroll and Grafton. None of the new detections are within ten miles of Vermont.

Although changes in the USDA quarantine are planned to reflect these new finds, the current rules remain in effect through at least the end of the EAB flight season. For more information see: [How to Legally Transport EAB-Regulated Wood Products from Vermont to Non-Quarantined Areas in New Hampshire and Maine](#).

In response to the Bennington County detection, a public information meeting will be held in Bennington on Tuesday, September 11th, 2018 regarding EAB. The meeting is scheduled for 5:30 – 7:00 PM at the Vermont Veterans Home. Directions are at <https://vtinvasives.org/news-events/events/eab-public-information-meeting>.

Those attending the meeting will learn about EAB, impacts of the quarantine, disposal options, slow the spread recommendations, and implications for the forest industry and municipalities. Officials with the Vermont Departments of Forests, Parks and Recreation and the Vermont Agency of Agriculture, Food and Markets, USDA APHIS and the US Forest Service will be present to answer questions. An updated version of [Ash Management Guidance for Forest Managers](#) is now posted on our website, with new recommendations for stands located within and outside the EAB infested area. The publication is also available on vtinvasives under [Resources For: Forest Landowners and Managers](#).

Maple Leafcutter Defoliation

Ground reports abound of very noticeable browning from [maple leaf cutter](#) (MLC). As of the end of August, infestations were heavy in lower crowns, but usually did not reach the upper crowns, a pattern that made aerial detection difficult. This defoliation pattern is typical of other years when rainy periods coincided with adult emergence, concentrating egg-laying in more protected areas of the crown. Starting life as a leafminer, then becoming a casebearer in later instars, the MLC completes its life cycle in its movable dwelling, eventually making it's way [by crawling or fluttering to the ground](#) where it pupates in a cocoon within the leaf discs. D.A. Ross has provided a fascinating [description of the biology of MLC](#) in a 1962 article in the *Canadian Entomologist*.

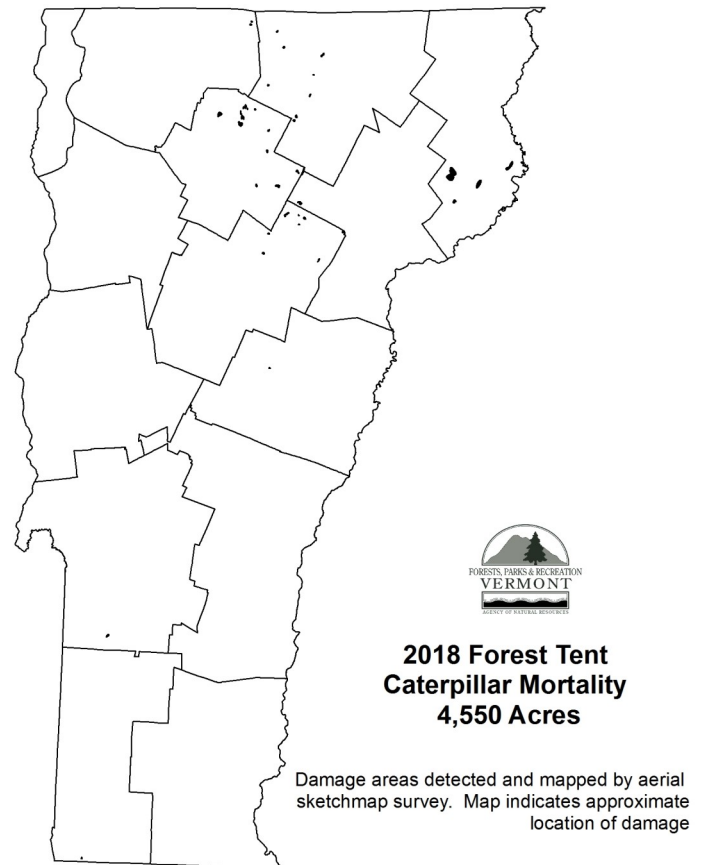
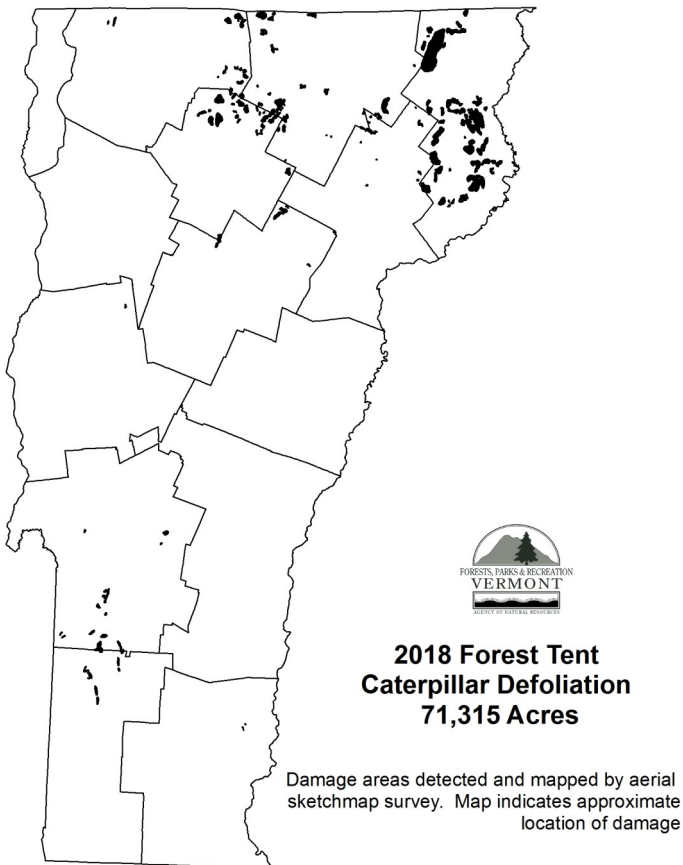


(Left) Maple leafcutter larvae in cases move once or twice every 24 hours to a new feeding position. Intra- and inter-tree dispersal may be more extensive in heavy infestations. Leaves shown here have very little tissue left for consumption. (Right) Dispersal of case-bearing larvae can be like a circus act, with larvae balancing oversized leaf discs as they stumble along.

Photos: D. Dillner

Forest Tent Caterpillar Update

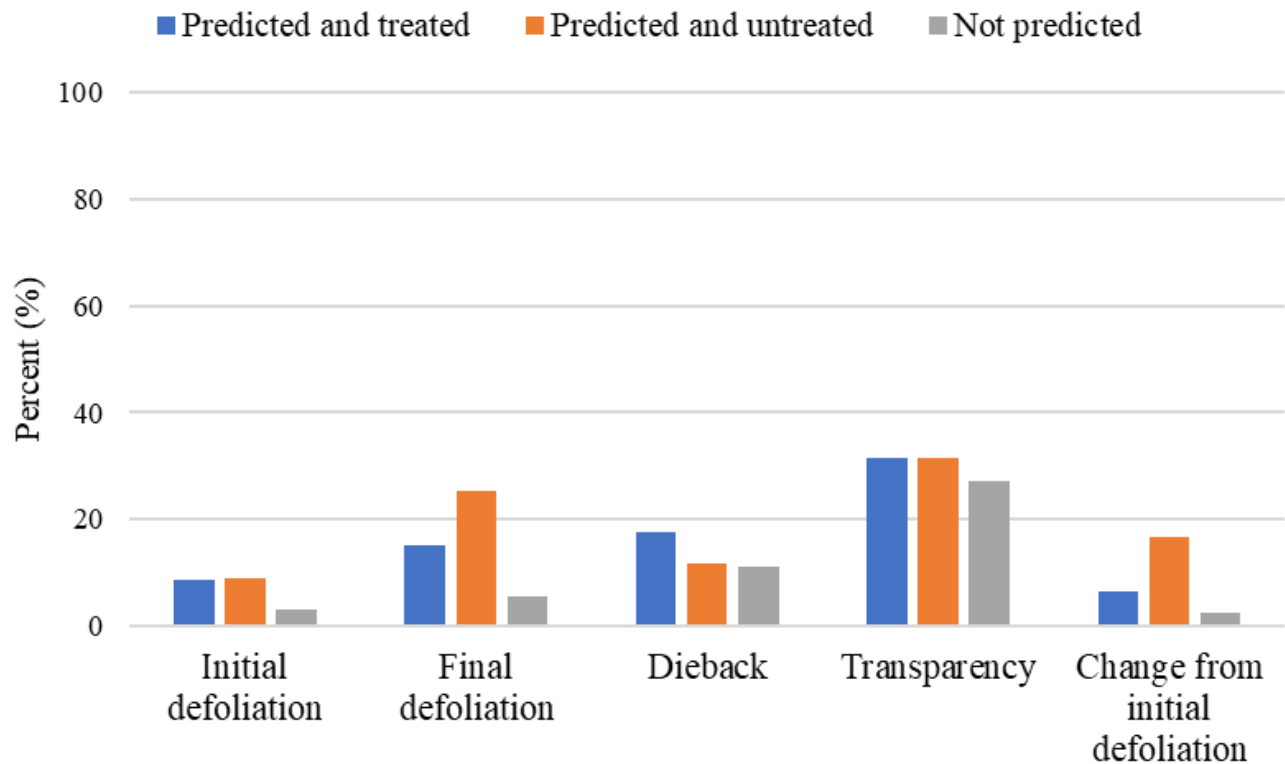
The results of our 2018 aerial survey indicated that 71,315 acres of forest land were defoliated by forest tent caterpillar (FTC). This is an increase from 2017 (~60,000 acres) and is the greatest acreage of defoliation we've witnessed during the current outbreak. However, the severity of defoliation differed from the previous 2 years. Many affected sites were only moderately defoliated (< 75% foliage removed; 26,554 acres) as opposed to severely defoliated (> 75% foliage removed; 44,761 acres). Heaviest defoliation was present in Essex, Orleans, and Lamoille counties. Defoliation in 2016 and 2017 resulted in an increase in tree mortality associated with FTC this year, with 4,550 acres of mortality mapped statewide. It is likely that dry/drought conditions present during the growing seasons contributed to mortality.



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Treatment for FTC was conducted by landowner request on some properties in late May and early June where defoliation was predicted. FPR staff evaluated the impact of FTC on these sites as well as those where defoliation was predicted but no treatment took place, and those where defoliation was not predicted (and no treatment occurred). The results of this can be seen in the following graph.

Forest tent caterpillar defoliation 2018



In summary, sites where defoliation was predicted but no treatment occurred experienced the greatest final defoliation and increase in defoliation through the growing season. However, the level of defoliation even on the most affected sites was rather low (~25% final defoliation).

The outlook for FTC defoliation in 2019 is still unclear. We are currently analyzing our FTC moth trap catches and are taking requests from landowners for possible FTC egg mass surveys this fall/winter. Details on egg mass surveys can be found at http://fpr.vermont.gov/sites/fpr/files/Forest_and_Forestry/Forest_Health/Library/Forest%20Tent%20Caterpillar%20Egg%20Mass%20Survey%20Instructions.pdf. If you would like to request an egg mass survey, please contact Josh Halman (joshua.halman@vermont.gov; (802) 279-9999).

Fall Webworm: Showy Bags of Webbing

The eye-catching tents of the [fall webworm](#) are now very noticeable and numerous in some parts of the state. This native insect has more than 50 natural predators and 36 parasites that help control it. They do not eat the buds of next year's leaves, but are feeding on leaves that are nearing the end of their photosynthetic lives. Next year, the leaves will appear on the currently affected branches with no sign of last year's damage.

Though many readers may be familiar with the [fall webworm's messy webbing](#), fewer are probably aware of the appearance of the caterpillar that causes all the fuss. Photo: M. Zubrik, Forest Research Institute - Slovakia, Bugwood.org



Looks can be deceiving: Purple Loosestrife

If you've ever spent a late August afternoon along a lake with a reedy shoreline, you may have noticed the brilliant, beautiful purple flowers of this month's focal plant: purple loosestrife (*Lythrum salicaria*).

Originating from Asia, Europe, and Africa, purple loosestrife is thought to have been introduced to North America on the east coast in the early 1800s, as an ornamental species. Today it can be found in almost every state in the U.S., and almost every province in Canada. In Vermont, purple loosestrife is documented in every county. This plant can tolerate a variety of soil conditions, but prefers open, moist soils to establish. You can find it in wetlands and wetland margins, along the shores of rivers and lakes, and in wet disturbed areas like ditches and fields.

Purple loosestrife is an herbaceous perennial plant, and mature plants can host multiple, erect stems, in clumps several feet wide. The leaves are long and narrow, arranged oppositely or whorled, around a square stem. The roots are thick and hard, and can grow laterally. One mature plant can produce 1-3 million seeds, and a new plant can sprout, grow, flower, and produce viable seed in the first growing season. In some areas, sterile cultivars are sold, but research has shown that even these plants can produce viable seed.



(Left) Flowers of purple loosestrife are clustered along a tall spike. (Right) Purple loosestrife can reach heights of several meters. Photos: N.E. Rees, USDA Agricultural Research Service, retired, Bugwood.org; E. Coombs, Oregon Department of Agriculture, Bugwood.org

The seed production, lateral root spread, and competitive nature of purple loosestrife allow it to quickly overtake an area. This spread often results in what is called a monotypic stand, where one species persists. Monotypic stands not only have direct impacts to native plants by outcompeting them for space and nutrients, they also displace the wildlife that would otherwise use the diverse wetland or water's edge habitat. When purple loosestrife grows densely over large areas, soil can get trapped in its dense roots and stems, effectively raising the water table, or closing off waterways. In Vermont this species is listed on [Vermont's Noxious Weed Quarantine](#).

Shoot emergence and seed germination can occur in late April, but the easiest time to spot this plant is when it flowers from early through late summer (mid June - September). Some actions you can take in your yard include pulling young plants by hand or with a tool (like a garden fork), but take caution to remove all parts of the plant above and below ground. For older plants, hand pulling may require repeated removal, for multiple years. Cutting flower heads is also useful to slow the spread of the plant when removal is not an option. Removal along shoreland of species listed by the state as noxious or nuisance is permitted: http://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/Shoreland/lp_NoxiousNuisancePlants.pdf

There is a similar, native species, *Chamerion angustifolium* (narrow-leaved fireweed), which also has bright purple flowers, but the flowers only have 4 petals, and the leaves are arranged alternately.

To learn more about purple loosestrife, check out www.VTinvasives.org and these additional resources: [Purple Loosestrife: Beauty or Beast](#); [GoBotany](#); [National Park Service](#); [New Hampshire Dept of Environmental Services Fact Sheet](#).

Insect Smorgasbord



A wood-splitter in Shrewsbury came across these specimens of *pigeon tremex*, also referred to as horntails (*Tremex columba*) that had pupated in the wood and transformed into the adult stage. Photo: A. Roy

Tube-like nests constructed by larvae of the *Cherry scallop shell moth* are obvious in some locations. The caterpillars feed gregariously on the leaf surface within the nest. Wings of the *adult moth* have a pattern of alternating dark and light scalloped lines on the wings. Photos: T. Greaves



The distinctive abdomen of the female *Pelecinid wasp* is 5 times the length of the rest of the body. She thrusts her long abdomen and ovipositor into soil to detect a May beetle host, and lays one egg on each. The larva burrows into the host beetle larva, killing it. Photo: R. Kelley



The serpentine mine of the [Aspen leafminer](#) is made by the larva of *Phyllocnistis populiella*, a [tiny moth](#). According to [Charley Eiseman](#), a leafmining expert with a [new book](#) in the works, "*Phyllocnistis* species always make a long, tortuous linear mine that never becomes a blotch. The larvae are unusual among leafminers in that they feed only on sap."

Photo: M. Ferguson

Dieback in apple trees in Hardwick and Washington was traced to a combination of [oystershell scale](#) and [apple scab disease](#). According to Ann Hazelrigg, UVM Extension, we had a heavy apple scab year last year so all the inoculum was ready to go, particularly in those areas that were wet. To mitigate, rake up the fallen leaves to decrease inoculum and prune trees this winter so a lot of light and air can circulate. Photos: J. Judd (left), J. OBrien, USDA Forest Service, [Bugwood.org](#), R.W. Samson, Purdue University, [Bugwood.org](#) (top and bottom, right)



[Beech scale](#) crawlers are now active. Heavy rains at this time of year can wash this mobile stage of the insect off the trees. When beech scale feeds on host tissues, it leaves small fissures on the bark. The feeding allows *Neonectria* fungi to enter the tree, which kills host tissue and can eventually girdle the tree. Photo: J. OBrien, USDA Forest Service, [Bugwood.org](#)

Caterpillar Quartet: (A) The caterpillar stage of the [Brown-hooded Owlet Moth](#) feeds on aster and goldenrod. (B) [Hickory Tussocks](#) have been common this year. (C) [Giant Swallowtail](#) caterpillars (the "bird poop" caterpillar) have been observed on common meadow rue in southern VT, and (D) it's been a great year for Monarchs in many parts of the state. Photos: (A.) J. Esden, (B) A. Weston, (C) [Butterflies at Home](#), (D) R. Kelley.

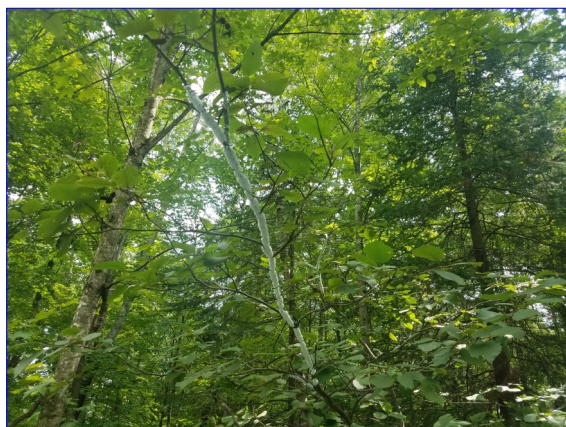


The elaborately sculptured insects known as [Lace Bugs](#) have been observed on basswood and ash. Leaves infested by lace bugs are often speckled and deformed. North America is home to about 140 species of lace bugs, with many host-specific species on trees such as ash, basswood, birch, willow, and oak. Photo: R. Kelley



[Eulophid wasp](#) pupae, referred to as “tombstone pupae”, were observed in Addison. The hosts of these parasitic wasps are leaf-rolling caterpillars in the moth family Tortricidae. [Charley Eiseman](#) wrote, “They got the nickname ‘tombstone pupae’ because they typically stand upright on the bottom of a leaf, and a cluster of them marks the site where a caterpillar died. The little brown clusters next to the pupae are the larval meconium—all of the waste produced in each wasp larva’s life, deposited in a single pile just before pupating.” Photo: A. Alfieri

[Dogwood Sawflies](#), whose early-instar larvae look like they are coated in powdered sugar, can fool observers with their variable appearance. As larvae mature, they lose the powdery white waxy covering and appear yellow beneath cross-stripes or spots above. Feeding gregariously, the sawflies can make quick work of their host’s foliage. Photo: J. Esden



Heavy [Beech Blight Aphid](#) populations make the smaller branches of infested beech trees appear to be covered with snow.

Photos: J. Esden



**For more information,
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